REMARKS

We are in receipt of the Office Action dated January 29, 2003, in the above-identified patent application, and the above amendment and following remarks are made in light thereof.

Claims 1, 3, 5-13, 15-48 and 50-59 are pending in the application, with claims 5-13, 16, 17, 19-20, 22, 23, 25, 26, 35-41 and 50-55 having been withdrawn from consideration. Pursuant to the Office Action, claims 1, 3, 15, 18, 21, 24, 27-34 and 42-48 are rejected due to various informalities and/or defects. Claim 3 is rejected under 35 U.S.C. §112, first paragraph. Claim 57 is rejected under 35 U.S.C. §112, second paragraph. Claims 1, 3, 15, 18, 21, 24 and 27-34 are rejected under 35 U.S.C. §103 as being unpatentable over Chen et al., U.S. Patent No. 5,926,712 in view of Ko et al., U.S. Patent No. 5,686,321. Claims 42-48 are rejected under 35 U.S.C. §103 as being unpatentable over Chen et al. in view of Ko et al. and further in view of Chang et al. U.S. Patent No. 5,893,740. Claims 56-59 are rejected under 35 U.S.C. §103 as being unpatentable over Chen et al. in view of Ko et al. and further in view of Mikoshiba JP 5606006A, and/or Okamura et al. U.S. Patent No. 5,945,972. This action was made Final.

In response, claims 1, 29, 42 and 56-57 are amended. Claim 3 is cancelled.

With respect to the claim objections, claims 1 and 29 have been amended to recite that a concentration of the second impurity in the channel forming region is from 1/100 to 1/10 of that in the impurity region formed under the channel forming region and in the source region. Embodiment 4 clearly teaches this structure and that the impurity region 804 in Fig. 8 is a punch through stopper which is discussed throughout the specification. This amendment is believed to be sufficient to clarify the feature of the present invention.

With respect to the rejection of claim 3 under 35 U.S.C. 112, first paragraph as containing subject matter which was not described in the specification, claim 3 has been cancelled.

Claim 57 stands rejected under 35 U.S.C. 112, second paragraph. Claim 57 has been amended to appropriately recite that each of the first and second p-type impurities is boron.

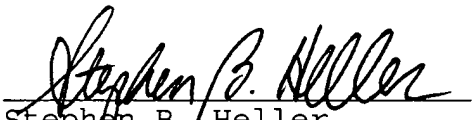
Claims 1, 3, 15, 18, 21, 24 and 27-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. in view of Ko et al. As already mentioned above, the claims have been amended to recite that the impurity region is formed under the channel forming region and in the source region. Furthermore, the limitation that the impurity region is not in contact with the drain region has been added. Upon reviewing Chen et al. it appears that an impurity region 217 corresponding to a punch through stopper is formed below the channel region and the

source region. Further, the impurity region 217 appears to be in contact with a drain region 219. On the other hand, the present invention teaches forming the punch through stopper so as to be extended from the source region to a portion below the channel forming region (Embodiment 4). (Spec. page 16, lines 16-19). Thus, the structure of the present invention distinguishes the structure of Chen et al., even if combined with Ko et al., and therefore Applicant believes that this amendment can overcome the rejection based on Chen et al.

The rejections of claims 42-48 and 56-59 under 35 U.S.C. §103 are believed to be obviated by the same amendment as discussed above.

Accordingly, the application is believed to be in proper condition for allowance, and an early Office Action in this regard is earnestly solicited.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 3 has been cancelled.

Claims 1, 29, 42, 56 and 57 have been amended as follows:

1. (Sixth Amendment) A semiconductor device comprising a plurality of MOSFETs formed in a single crystal semiconductor substrate,

each of the plurality of MOSFETs comprising:

a source region and a drain region each including a first impurity;

a channel forming region being formed between the source region and the drain region; and

an impurity region including a second impurity having an opposite conductive type to the first impurity and being formed under the channel forming region and in the source region,

wherein the impurity region is not in contact with the drain region, and

wherein a concentration of the second impurity in the channel forming region is from 1/100 to 1/10 of that in the impurity region formed under the channel forming region and in the source region.

29. (Fourth Amendment) A semiconductor device comprising a plurality of MOSFETs formed in a single crystal semiconductor substrate,

each of the plurality of MOSFETs comprising:

a source region and a drain region each including a first impurity;

a channel forming region being formed between the source region and the drain region;

an impurity region including a second impurity having an opposite conductive type to the first impurity and being formed under the channel forming region and in the source region;

a pair of LDD regions, wherein one of the pair of LDD regions is formed between the source region and the channel forming region while the other of the pair of LDD regions is formed between the channel forming region and the drain region,

wherein the impurity region is not in contact with the drain region, and

wherein a concentration of the second impurity in the channel forming region is from 1/100 to 1/10 of that in the impurity region formed under the channel forming region and in the source region.

42. (Fourth Amendment) A semiconductor device comprising at least a CMOS circuit including an n-channel MOSFET and a p-channel MOSFET each being formed in a single crystal semiconductor substrate,

said n-channel MOSFET comprising:

a first source region and a first drain region each comprising a first n-type impurity;

a first channel forming region being formed between the first source region and the first drain region;

a first impurity region including a first p-type impurity and being formed under the first channel forming region and in the first source region;

wherein the first impurity region is not in contact with the drain region,

said p-channel MOSFET comprising:

a second source region and a second drain region each comprising a second p-type impurity;

a second channel forming region being formed between the second source region and the second drain region;

a second impurity region including a second n-type impurity and being formed under the second channel forming region.

56. (First Amendment) An EL display device comprising:

a plurality of MOSFETs formed in a single crystal semiconductor substrate, each of the plurality of MOSFETs comprising:

a source region and a drain region each including a first impurity;

a channel forming region being formed between the source region and the drain region; and

an impurity region including a second impurity having an opposite conductive type to the first impurity and being formed under the channel forming region and in the source region,

wherein the impurity region is not in contact with the drain region,

wherein a concentration of the second impurity in the channel forming region is from 1/100 to 1/10 of that in the impurity region,

wherein the second impurity is introduced from a direction of the < 110 > axis with respect to the single crystal semiconductor substrate, so that the second impurity is introduced from a perpendicular direction to a plane having the smallest atomic density of the single crystal semiconductor substrate,

wherein the concentration of the second impurity in the impurity region is in a range of 1×10^{18} to 1×10^{19} atoms/cm^3,

wherein the concentration of the second impurity in the channel forming region is in a range of 1×10^{16} to 1×10^{17} atoms/cm^3.

57. (First Amendment) An EL display device according to claim 56,

wherein the first n-type impurity is arsenic,

wherein the second n-type impurity is phosphorus, and

wherein each of the first and second p-type ~~impurity~~ impurities is boron.